Alternatives to OSI
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Following recent discussions concerning the relative merits of OSI and
ARPA protocols, I decided to throw my hat into the ring. Furthermore,
I believe that the ARPA protocols are not the only contenders with
OSI, and that a number of even more "mature" mechanisms exist. I
present seven possibilities for consideration.

1. Bean tins and bits of string

The use of bean tins and taut pieces of string has long been
recognised as an effective means of communication. In fact,
excavations from Anglo-Saxon dwellings in Nottingham show their use
(albeit with imported coconuts as opposed to bean tins) in early
everyday office situations.

Bean tins and string have several advantages over OSI:

        a. They are fast, light weight and portable.
        b. They don't require the purchase of expensive computers.
        c. Complex error correction (based on the "NO - I said ..."
           principal)
        d. Uses off the supermarket shelf technology.
        e. They were not invented by the ISO.

They also exhibit a very few trifling limitations:

        a. Poor support for "packet" switching (however, tin switching
           may be supported).
        b. Users often cut themselves on the tins.
        c. Star network topologies become more complex.
        d. They don't scale very well.

2. Shouting from the roof tops

Shouting from the rooftops can be an effective method of optimised
local area communication. It is based on the well understood CMSA/CD
technology but with the notion of priority. Users can insert high
priority traffic with the "If I might get a word in edgeways" packet.
It is already in widespread use - e.g., the House of Commons,
political canvassing and Speakers Corner. Naturally, a roof top is
only necessary for high bandwidth traffic. The PTT's would probably
assume this role. The average user would be content to shout in the
street.

Shouting has many advantages over OSI:

        a. It is not as "complex and obscure".
        b. Most people understand shouting.
        c. Broadcasts are easy.
        d. Its fun.
        e. It wasn't invented by the ISO

OSI has hardly any advantages over shouting:

3. Burning beacons on hill-tops:

Burning beacons on hill-tops have long been used to warn of advancing
Armadas and their like. However, the author believes that beacons may
have wider applications than just these.

In particular, they have the following advantages over OSI:

        a. No "dangerous checkpointing".
        b. They keep you warm.
        c. Not overly complex and obscure.
        d. A secondary use for the disposal of those nasty ISO people.
        e. Not cluttered with unnecessary functionality.
        f. Not invented by the ISO.

Disadvantages to OSI:

        a. Not suitable for the office environment (this may really be
           an advantage in some circumstances).
        b. Low bandwidth (may also be an advantage - see 7)
        c. Error rates can be high. Arsonists, pyromaniacs and
           "Satanic Verses" burners can generate spoof packets.

4. Semaphore

Semaphore has been in use for many years. So why did ISO not consider
this for international internetworking? This is difficult to
determine, but is probably due to political motivations rather than
any deficiencies in the protocols. Naturally there are a few rough
edges to be addressed.

Advantages over OSI

        a. Broadcasts are easily accommodated.
        b. Widely supported off-the-shelf infra-structure (boy scouts).
        c. Not invented by ISO

Disadvantages over OSI

        a. Not so useful at night (but a working party on luminous
           flags is in progress).
        b. Bandwidth is rather low - but automation should help.

5. Messages in bottles

This is a low cost solution to networking. Bottles are easy to obtain
and with a little development, this neglected backwater of
communications technology could be a real alternative.

Advantages over OSI

        a. High bandwidth data channels already in existence (e.g. the
           gulf stream, rivers and sewers.)
        b. Large amounts of data can be placed in the appropriate
           sized bottles.
        c. Not invented by ISO.

Disadvantages to OSI

        a. Transit time is unpredictable (but then IP, for instance,
           does not guarantee any bounded delivery time)

6. The Telephone

This might be seen as an enhancement of method 2. However, there is a

lot to be gained from this approach. The name lookup problem is
already solved as are routing issues. Lets face it, communications
protocols are ultimately used for communicating between people. So why
not just standardise the telephone. Add on services such as broadcast
agents (commonly called gossips/operators) are easy to achieve.

Advantages over OSI

        a. Its a mature existing technology.
        b. Directory services issues, routing and charging are
           already established.
        c. It's now available in portable form.
        d. Not invented by ISO

Disadvantages to OSI

        a. Because it's a mature technology, there aren't so many
           interesting research areas.
        b. As a result of 2. there are few exotic conference openings.
        c. It costs money.

7. Not communicating at all

One question I asked myself was "why communicate at all?" On
consideration it was realised that not communicating has the following
advantages over OSI.

        a. Low consumption of bandwidth.
        b. Cheap and easy to manage.
        c. No one disagrees with you.
        d. Without the time wasted on communication, other business
           proceeds much quicker.
        e. Not invented by the ISO

No known disadvantages to OSI.

The ARPA protocols.

The ARPA protocols deserve consideration along with many of the above
mentioned methods of communication. In particular, they have one
major advantage over OSI.

        a. Not invented by the ISO

However, despite this overwhelming advantage of the Internet protocol
suite, the ISO proponents simply will not give in. In this section I
therefore give a few other reasons for the superiority of the Internet
suite - as if 1. was not enough.

Scalability. The Internet protocols are obviously scalable as has been
proved time and time again. All that is required is for the PTT's to
take the sensible step of providing a network infra-structure and the
rest can be solved. Charging is easily accommodated - the PTT's pick
up the bills.

Network interface. Many people have commented on how convenient it is
to have a network address which fits into a common word size. This is
such a advantage that the limitations are really insignificant. If the
address space ever gets used up there is an obvious extension
mechanism - the waiting list.

Session layer. The Internet suite sensibly disregarded session
services as superfluous. As has been observed, checkpointing is
inherently dangerous as it can lead to loss of network usage and
revenue. OSI has been influenced by the Internet community here, and
has provided a session service complex enough that most
implementations try and ignore it.

Presentation layer. Again the Internet triumphs. It is quite clear
that for the most part applications only need to exchange data
consisting of bytes of 8, 16 and 32 bit quantities. These simple
structures can be used as building blocks to construct almost any
structure required. If this is not sufficient, there is a simple
escape mechanism provided, known in the jargon as a "string encoding".
It is quite clear that ASN.1 is just over the top - CHOICE's and
OPTIONAL's are for quiche-eating indecisive applications.

Application layer. Well the Internet has got this one too. Honestly,
it's quite obvious that each application should do its own thing.
That's what they're there for. If an application needs remote
procedure call interface, or security, or name lookup, then it can do
it itself rather than forcing it to use some more general service like
ROS or directory services.

SUMMARY

In summary, I feel that all of the above methods are orders of
magnitude better than OSI (which incidently, and by coincidence,
wasn't invented here). In particular, I feel that method 7 offers the
greatest potential and, with this in mind, WE DO NOT WELCOME ANY
FURTHER COMMENTS YOU MIGHT HAVE!